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Precise branching-ratio measurement for the superallowed Fermi beta decay of ^{34}Ar at NIRS-HIMAC SHUMPEI KINNO, Tokyo University of Sciecce, HIMAC H312 COLLABORATION — The precise measurement of the ft values for superallowed Fermi beta decays is a valuable tool to explore weak interactions. The resulting ft values can confirm the CVC hypothesis, the unitarity of CKM matrix, and the existence of large isospin-symmetry breaking. Recently, the mirror superallowed Fermi beta decays, ^{38}Ca $\rightarrow$ ^{38m}K and ^{38m}K $\rightarrow$ ^{38}Ar, have been reported as a sensitive test of the isospin-symmetry breaking. In order to study the mirror superallowed Fermi beta decays in $A = 34$ systems, the precise measurement for the branching ratios of ^{34}Ar emitter has been performed.The experiment was carried out at NIRS-HIMAC. The secondary beam including ^{34}Ar was produced with the projectile fragmentation of a 500-MeV/u ^{36}Ar beam on a CH_2 target. The secondary beam was separated and identified by passing through the secondary beam line. After decreasing the beam energy with an Al degrader of variable thickness, the beam was implanted in the center of a 6-mm thick GSO scintillator surrounded by four clover Ge detectors. The beta and gamma rays were detected by the GSO stopper and the clover Ge detectors, respectively. By analyzing the beta- and gamma-rays energy and time spectra, the branching ratios of ^{34}Ar have been determined.

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